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the réseau is not well founded. The assumptions involved, briefly stated, are as follows: First, general distortions exist; second, they differ in different parts of the plate; third, they may be assumed to be linear within the squares of the réseau (i. e. over a stretch of 5^{mm} or more). The supposed advantages of the réseau over the method of referring all the measures to a common center rest entirely upon the validity of these three assumptions. If the réseau can be dispensed with there will be a saving of the labor involved in making the large number of settings on the réseau-lines and in the reductions of the measurements.

S. ALBRECHT.

LICK OBSERVATORY, UNIVERSITY OF CALIFORNIA,
May, 1907.

NEW DOUBLE-STAR DISCOVERIES.

Since the publication of the list of two hundred and fifty new double stars in *Lick Observatory Bulletin*, No. 109, more than one hundred additional pairs have been discovered with the 36-inch and 12-inch telescopes of this observatory. Included in this number are the following, which seem worthy of special note:—

29 *Hydræ* = β 590. The 36-inch shows that the principal star is a close double. My measures are:—

1907.21	182°.8	0".17	7.2-7.2	2 ⁿ	A and B.
1907.21	175 .4	10 .79	6.7-12.5	2	A B and C = β 590.

According to BURNHAM, the principal star has an annual proper motion of 0".068 in 268°.3. It is clear that this is common to both components, for otherwise the close pair would have been detected by BURNHAM when he discovered the faint star. Measures of C show no relative change, hence this star, too, belongs to the system.

B. D. + 46°.2054 = Es. 75. The southern star of ESPIN's pair is a neat double. My measures give:—

1907.40	275°.7	0".63	9.7-9.8	3 ⁿ	A and B.
1907.39	35 .6	4 .39	9.2-9.3	2	A B and C = ESPIN 75.

In *Astronomische Nachrichten*, No. 3784, ESPIN gives the position for 1880 as 12^h 15^m.9; + 46° 29', and this is copied by BURNHAM in his general catalogue. It should be 15^h 15^m.9; + 46° 29'.

53 (μ^2) *Boötis*. The 36-inch telescope shows that this naked-eye star is an exceedingly close double. Measures on

two nights give the distance as only $0''.08$ in position-angle $237^\circ.0$. In the Harvard photometry the magnitude is given as 4.93, and the two components appear to be of equal brightness. Meridian observations show that the star has a small but well-determined proper motion, and it is therefore obvious that the two components form a physical system. It may be added that 52 and 53 *Boötis* form a close pair when viewed without a telescope.

B. D. $+15^\circ.4181$. This 6.5-magnitude star is another example of the close pairs detected with the 36-inch telescope. Measures on one night give:—

1907.519 $324^\circ.3$ $0''.16$ 7.0–7.0

It is certain to prove a binary system, and it is a member of the class to which most of the rapid binary stars belong. According to AUWERS, the meridian observations give it an annual proper motion of $0''.068$ in $297^\circ.4$.

B. D. $+52^\circ.2963 = \beta 370$. The 36-inch shows two companions which are too faint to be seen with any telescope previously used to measure BURNHAM's pair. My measures are:—

1907.44	$326^\circ.5$	$3''.30$	8.0–9.0	2 ⁿ	<i>A</i> and <i>B</i> = $\beta 370$.
1907.44	349 .0	2 .20	9.0–14.5	2	<i>B</i> and <i>C</i> .
1907.44	239 .5	7 .30	9.0–14.5	2	<i>B</i> and <i>D</i> .

July 22, 1907.

R. G. AITKEN.
